

IB Questionbank Mathematics Standard Level

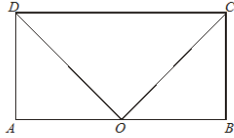
File Edit View Insert Tools Window Help

Viewer

M99 S1.13 2D vectors
Vector geometry: express vectors in terms of those given

4 [4]

$ABCD$ is a rectangle and O is the midpoint of $[AB]$.



Express each of the following vectors in terms of \overrightarrow{OC} and \overrightarrow{OD}

(a) \overrightarrow{CD}

(b) \overrightarrow{OA}

(c) \overrightarrow{AD}

Working:	
	Answers:
	(a)

Item 1 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Viewer

M99 S1.18 2D vectors, Vector algebra
Combine vectors; use magnitude & direction

4 [4]

The vectors \vec{i} , \vec{j} are unit vectors along the x-axis and y-axis respectively.

The vectors $\vec{u} = -\vec{i} + 2\vec{j}$ and $\vec{v} = 3\vec{i} + 5\vec{j}$ are given.

(a) Find $\vec{u} + 2\vec{v}$ in terms of \vec{i} and \vec{j} .

A vector \vec{w} has the same direction as $\vec{u} + 2\vec{v}$, and has a magnitude of 26.

(b) Find \vec{w} in terms of \vec{i} and \vec{j} .

Working:	
	Answers:
	(a)
	...
	(b)
	...

(Total 4 marks)

Item 2 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Viewer

M99.S2.A4 ○ Solution of triangles, 2D vectors, Vector alg 12 [12]

Position vectors; scalar product; area of triangle

The circle shown has centre O and radius 6. \overrightarrow{OA} is the vector $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$, \overrightarrow{OB} is the vector $\begin{pmatrix} -6 \\ 0 \end{pmatrix}$ and \overrightarrow{OC} is the vector $\begin{pmatrix} 5 \\ \sqrt{11} \end{pmatrix}$.

(a) Verify that A , B and C lie on the circle. (3)

(b) Find the vector \overrightarrow{AC} . (2)

(c) Using an appropriate scalar product, or otherwise, find the cosine of angle \widehat{OAC} . (3)

(d) Find the area of triangle ABC , giving your answer in the form $a\sqrt{11}$, where $a \in \mathbb{N}$. (4)

(Total 12 marks)

Item 3 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Viewer

N99.S1.11 ○ 2D vectors, Scalar product 5 [4]

Find angle between two vectors

The quadrilateral $OABC$ has vertices with coordinates $O(0, 0)$, $A(5, 1)$, $B(10, 5)$ and $C(2, 7)$.

(a) Find the vectors \overrightarrow{OB} and \overrightarrow{AC} .

(b) Find the angle between the diagonals of the quadrilateral $OABC$.

Working:	
	Answers:
	(a)
	...
	(b)
	...

(Total 4 marks)

Item 4 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Viewer

M00.S1.04 2D vectors, Vector algebra
Find linear combination

The vectors u, v are given by $u = 3i + 5j, v = i - 2j$.

Find scalars a, b such that $a(u + v) = 8i + (b - 2)j$.

Working:	
	Answer:

(Total 4 marks)

Item 5 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Viewer

M00.S1.07 2D vectors, Equation of a line
Find equation given two points

Find a vector equation of the line passing through $(-1, 4)$ and $(3, -1)$. Give your answer in the form $r = p + td$ where $t \in \mathbb{R}$.

Working:	
	Answer:

(Total 4 marks)

Item 6 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types

M99.S1.13 2D vectors 04
Vector geometry: express vectors in terms of other vectors

M99.S1.18 2D vectors, Vector algebra 04
Combine vectors; use magnitude & direction

M99.S2.A4 Solution of triangles, 2D 012
Position vectors; scalar product; area of triangle

N99.S1.11 2D vectors, Scalar product 05
Find angle between two vectors

M00.S1.04 2D vectors, Vector algebra 04
Find linear combination

M00.S1.07 2D vectors, Equation of a line 04
Find equation given two points

M00.S2.05 2D vectors 024
Application to travel problem

N00.S1.05 Equation of a line 04
Find equation

N00.S1.13 2D vectors 04
Accurate drawing

Untitled

Viewer

M00.S2.05 2D vectors
Application to travel problem

024 [20]

In this question, the vector $\begin{pmatrix} 1 \\ 0 \end{pmatrix}$ km represents a displacement due east, and the vector $\begin{pmatrix} 0 \\ 1 \end{pmatrix}$ km a displacement due north.

Two crews of workers are laying an underground cable in a north-south direction across a desert. At 06:00 each crew sets out from their base camp which is situated at the origin (0, 0). One crew is in a Toyundai vehicle and the other in a Chryssault vehicle.

The Toyundai has velocity vector $\begin{pmatrix} 18 \\ 24 \end{pmatrix}$ km h⁻¹, and the Chryssault has velocity vector $\begin{pmatrix} 36 \\ -16 \end{pmatrix}$ km h⁻¹.

(a) Find the speed of each vehicle. (2)

(b) (i) Find the position vectors of each vehicle at 06:30. (2)

(ii) Hence, or otherwise, find the distance between the vehicles at 06:30. (3)

(c) At this time (06:30) the Chryssault stops and its crew begin their day's work, laying cable in a northerly direction. The Toyundai continues travelling in the same direction at the same speed until it is exactly north of the Chryssault. The Toyundai crew then begin their day's work, laying cable in a southerly direction. At what time does the Toyundai crew begin laying cable? (4)

(d) Each crew lays an average of 800 m of cable in an hour. If they work non-stop until their lunch break at 11:30, what is the distance between them at this time? (4)

(e) How long would the Toyundai take to return to base camp from its lunch-time position, assuming it travelled in a straight line and with the same average speed as on the morning journey? (Give your answer to the nearest minute.)

Item 7 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types

N99.S1.11 2D vectors, Scalar product 05
Find angle between two vectors

M00.S1.04 2D vectors, Vector algebra 04
Find linear combination

M00.S1.07 2D vectors, Equation of a line 04
Find equation given two points

M00.S2.05 2D vectors 024
Application to travel problem

N00.S1.05 Equation of a line 04
Find equation

N00.S1.13 2D vectors 04
Accurate drawing

N00.S2.04 2D vectors, Equation of a line 024
Application to two aircraft

P0.S1.05 2D vectors, Scalar product 04
Find angle between given vectors

P0.S1.08 Equation of a line 04
Find in cartesian form

Untitled

Viewer

P0.S1.08 Equation of a line
Find in cartesian form

04 [4]

A line passes through the point (4, -1) and its direction is perpendicular to the vector $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$. Find the equation of the line in the form $ax + by = p$, where a , b and p are integers to be determined.

Working:

Answer:

(Total 4 marks)

Item 12 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types Papers

N00.S1.13 2D vectors Accurate drawing 04

N00.S2.04 2D vectors, Equation of 024 Application to two aircraft

P0.S1.05 2D vectors, Scalar prod 04 Find angle between given vectors

P0.S1.08 Equation of a line 04 Find in cartesian form

P0.S2.03 2D vectors, Vector alge 024 Application to ships

M01.S1.10 2D vectors, Scalar prod 04 Find angle between two vectors

M01.S2.03 2D vectors, Equation of 017 Application to model cars colliding

N01.S1.02 2D vectors, Equation of 04 Given two points line equation of line

N01.S1.11 2D vectors, Scalar prod 04 Scalar product leading to quadratic equation

Untitled

Viewer

N01.S1.11 2D vectors, Scalar product 04 [4]

Scalar product leading to quadratic equation

The vectors $\begin{pmatrix} 2x \\ x-3 \end{pmatrix}$ and $\begin{pmatrix} x+1 \\ 5 \end{pmatrix}$ are perpendicular for two values of x .

(a) Write down the quadratic equation which the two values of x must satisfy.

(b) Find the two values of x .

Working:

Answers:

(a)

.....

(b)

.....

(Total 4 marks)

Item 17 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types Papers

P0.S1.05 2D vectors, Scalar prod 04 Find angle between given vectors

P0.S1.08 Equation of a line 04 Find in cartesian form

P0.S2.03 2D vectors, Vector alge 024 Application to ships

M01.S1.10 2D vectors, Scalar prod 04 Find angle between two vectors

M01.S2.03 2D vectors, Equation of 017 Application to model cars colliding

N01.S1.02 2D vectors, Equation of 04 Given two points line equation of line

N01.S1.11 2D vectors, Scalar prod 04 Scalar product leading to quadratic equation

N01.S2.04 2D vectors, Vector alge 022 2D vectors, vector algebra; scalar product

M02.S1.05 2D vectors, Equation of 04 Convert equation to cartesian form

Untitled

Viewer

M02.S1.05 2D vectors, Equation of a line 04 [6]

Convert equation to cartesian form

A vector equation of a line is $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \end{pmatrix} + t \begin{pmatrix} -2 \\ 3 \end{pmatrix}, t \in \mathbb{R}$.

Find the equation of this line in the form $ax + by = c$, where a , b , and $c \in \mathbb{Z}$.

Working:

Answer:

.....

(Total 6 marks)

Item 19 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types

Question List:

- P0.S1.08 Equation of a line Find in cartesian form 04
- P0.S2.03 2D vectors, Vector algebra 024 Application to ships
- M01.S1.10 2D vectors, Scalar product 04 Find angle between two vectors
- M01.S2.03 2D vectors, Equation of a line Application to model cars colliding 017
- N01.S1.02 2D vectors, Equation of a line Given two points line equation of line 04
- N01.S1.11 2D vectors, Scalar product 04 Scalar product leading to quadratic equation
- N01.S2.04 2D vectors, Vector algebra 022 2D vectors; vector algebra; scalar product
- M02.S1.05 2D vectors, Equation of a line Convert equation to cartesian form 04
- M02.S2.03 2D vectors, Scalar product 023 Find & use eq; angle between vectors

Viewer

M02.S2.03 2D vectors, Scalar product, Equation of a line 023 [19]

Find & use eq; angle between vectors

Three of the coordinates of the parallelogram STUV are $S(-2, -2)$, $T(7, 7)$, $U(5, 15)$.

(a) Find the vector \overrightarrow{ST} and hence the coordinates of V. (5)

(b) Find a vector equation of the line (UV) in the form $r = p + \lambda d$ where $\lambda \in \mathbb{R}$. (2)

(c) Show that the point E with position vector $\begin{pmatrix} 1 \\ 11 \end{pmatrix}$ is on the line (UV), and find the value of λ for this point. (2)

The point W has position vector $\begin{pmatrix} a \\ 17 \end{pmatrix}$, $a \in \mathbb{R}$.

(d) (i) If $|\overrightarrow{EW}| = 2\sqrt{13}$, show that one value of a is -3 and find the other possible value of a . (10)

(ii) For $a = -3$, calculate the angle between \overrightarrow{EW} and \overrightarrow{ET} . (10)

(Total 19 marks)

Item 20 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types

Question List:

- P0.S2.03 2D vectors, Vector algebra 024 Application to ships
- M01.S1.10 2D vectors, Scalar product 04 Find angle between two vectors
- M01.S2.03 2D vectors, Equation of a line Application to model cars colliding 017
- N01.S1.02 2D vectors, Equation of a line Given two points line equation of line 04
- N01.S1.11 2D vectors, Scalar product 04 Scalar product leading to quadratic equation
- N01.S2.04 2D vectors, Vector algebra 022 2D vectors; vector algebra; scalar product
- M02.S1.05 2D vectors, Equation of a line Convert equation to cartesian form 04
- M02.S2.03 2D vectors, Scalar product 023 Find & use eq; angle between vectors
- N02.S1.11 2D vectors, Equation of a line Find angle between two planes

Viewer

N02.S1.11 2D vectors, Equation of a line 04 [6]

Find angle between two planes

Calculate the acute angle between the lines with equations

$$r = \begin{pmatrix} 4 \\ -1 \end{pmatrix} + s \begin{pmatrix} 4 \\ 3 \end{pmatrix} \quad \text{and} \quad r = \begin{pmatrix} 2 \\ 4 \end{pmatrix} + t \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

Working:

Answer:

(Total 6 marks)

Item 21 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types Papers

M01.S2.03 2D vectors, Equation of G17 [14]
Application to model cars colliding

M01.S1.02 2D vectors, Equation of G4 [4]
Given two points line equation of line

M01.S1.11 2D vectors, Scalar prod G4 [4]
Scalar product leading to quadratic equation

M01.S2.04 2D vectors, Vector alge G22 [18]
2D vectors; vector algebra; scalar product

M02.S1.05 2D vectors, Equation of G4 [6]
Convert equation to cartesian form

M02.S2.03 2D vectors, Scalar prod G23 [19]
Find & use eqt; angle between vectors

M02.S1.11 2D vectors, Equation of G4 [6]
Find angle between two planes

M02.S2.04 2D vectors, Vector alge G7 [6]
2D vectors; vector algebra; scalar product

M03.S1.07 2D vectors, Intersection G4 [6]
Find pt of intersection of 2 lines

Untitled

Viewer

M03.S1.07 2D vectors, Intersection of lines [6]
Find pt of intersection of 2 lines

The vector equations of two lines are given below.

$$r_1 = \begin{pmatrix} 5 \\ 1 \end{pmatrix} + \lambda \begin{pmatrix} 3 \\ -2 \end{pmatrix}, \quad r_2 = \begin{pmatrix} -2 \\ 2 \end{pmatrix} + \mu \begin{pmatrix} 4 \\ 1 \end{pmatrix}$$

The lines intersect at the point P. Find the position vector of P.

Working:

Answer:

(Total 6 marks)

Item 23 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types Papers

M02.S1.05 2D vectors, Equation of G4 [6]
Convert equation to cartesian form

M02.S2.03 2D vectors, Scalar prod G23 [19]
Find & use eqt; angle between vectors

M02.S1.11 2D vectors, Equation of G4 [6]
Find angle between two planes

M02.S2.04 2D vectors, Vector alge G7 [6]
2D vectors; vector algebra; scalar product

M03.S1.07 2D vectors, Intersection G4 [6]
Find pt of intersection of 2 lines

M03.S1.12 2D vectors, Scalar prod G1 [2]
2D vectors; scalar product

M03.S2.02 Solution of triangles, 2D G17 [14]
Exact values

M03.S1.07 2D vectors, Equation of G4 [6]
Equations for same line

M03.S1.09 2D vectors, Scalar prod G4 [6]
Find angle

Untitled

Viewer

M03.S1.09 2D vectors, Scalar product [6]
Find angle

(a) Find the scalar product of the vectors $\begin{pmatrix} 60 \\ 25 \end{pmatrix}$ and $\begin{pmatrix} -30 \\ 40 \end{pmatrix}$.

(b) Two markers are at the points P (60, 25) and Q (-30, 40). A surveyor stands at O (0, 0) and looks at marker P. Find the angle she turns through to look at marker Q.

Working:

Answers:

(a)

(b)

(Total 6 marks)

Item 27 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types Papers

N02.S2.04 2D vectors, Vector algebra 7 [6]
 2D vectors; vector algebra; scalar product
 M03.S1.07 2D vectors, Intersection 4 [6]
 Find pt of intersection of 2 lines
 M03.S1.12 2D vectors, Scalar prod 1 [2]
 2D vectors; scalar product
 M03.S2.02 Solution of triangles, 2D 17 [14]
 Exact values
 N03.S1.07 2D vectors, Equation of 4 [6]
 Equations for same line
 N03.S1.09 2D vectors, Scalar prod 4 [6]
 Find angle
 M03.S2.01 2D vectors, Scalar prod 19 [16]
 Find position vectors; use eqt of line
 M04.S1.13 2D vectors, Equation of 4 [6]
 Find angle between lines
 M04.S2.01 2D vectors, Vector algebra 18 [15]
 Position vectors; magnitude

Untitled

Viewer

M04.S2.01 2D vectors, Vector algebra, Scalar product 18 [15]
 Position vectors; magnitude

The points A and B have the position vectors $\begin{pmatrix} 2 \\ -2 \end{pmatrix}$ and $\begin{pmatrix} -3 \\ -1 \end{pmatrix}$ respectively.

(a) (i) Find the vector \overrightarrow{AB} . (4)

(ii) Find $|\overrightarrow{AB}|$. (4)

The point D has position vector $\begin{pmatrix} d \\ 23 \end{pmatrix}$

(b) Find the vector \overrightarrow{AD} in terms of d . (2)

The angle \hat{BAD} is 90° .

(c) (i) Show that $d = 7$. (3)

(ii) Write down the position vector of the point D. (4)

The quadrilateral ABCD is a rectangle.

(d) Find the position vector of the point C. (4)

(e) Find the area of the rectangle ABCD. (2)

(Total 15 marks)

Item 30 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types Papers

Q M03.S1.07 2D vectors, Intersection of 2 lines [6] Find pt of intersection of 2 lines

Q M03.S1.12 2D vectors, Scalar prod of 2 vectors, scalar product [2]

Q M03.S2.02 Solution of triangles, 2D [14] Exact values

Q N03.S1.07 2D vectors, Equation of a line [6] Equations for same line

Q N03.S1.09 2D vectors, Scalar prod of 2 vectors, scalar product [6] Find angle

Q N03.S2.01 2D vectors, Scalar prod of 2 vectors, scalar product [16] Find position vectors; use eqn of line

Q M04.S1.13 2D vectors, Equation of a line [6] Find angle between lines

Q M04.S2.01 2D vectors, Vector algebra [15] Position vectors; magnitude

Q N04.S2.02 2D vectors, Scalar prod of 2 vectors, scalar product [15] Angle between vectors; pt of intersection of lines

Viewer

N04.S2.02 2D vectors, Scalar prod of 2 vectors, scalar product [15] Angle between vectors; pt of intersection of lines

Points A, B, and C have position vectors $4i + 2j$, $i - 3j$ and $-5i - 5j$. Let D be a point on the x-axis such that ABCD forms a parallelogram.

(a) (i) Find \overline{BC} . (4)

(ii) Find the position vector of D. (6)

(b) Find the angle between \overline{BD} and \overline{AC} . (6)

The line L_1 passes through A and is parallel to $i + 4j$. The line L_2 passes through B and is parallel to $2i + 7j$. A vector equation of L_1 is $r = (4i + 2j) + s(i + 4j)$.

(c) Write down a vector equation of L_2 in the form $r = b + tq$. (1)

(d) The lines L_1 and L_2 intersect at the point P. Find the position vector of P. (4)

(Total 15 marks)

Item 31 of 52 in Question Finder, total marks: 512, time allowed: 537 min

IB Questionbank Mathematics Standard Level

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Question Finder

Vectors Guidance Questions

Types Papers

Q N04.S2.02 2D vectors, Scalar prod of 2 vectors, scalar product [15] Angle between vectors; pt of intersection of lines

Q P5.S1.05 3D vectors [6] Position vectors

Q P5.S1.11 Vectors, 2D vectors, Scalar prod of 2 vectors, scalar product [6] Angle between vectors

Q P5.S2.05 3D vectors, Equation of a line [15] Application to flight

Q M05.S1.10 Scalar product, Angles [6] Find cosine of angle between two vectors

Q M05.S2.05 2D vectors, Equation of a line [17] Application to travel; use equation of line

Q N05.1.13 2D vectors, Equation of a line [6] Application to velocity

Q N05.2.4A 2D vectors, Vector algebra [12] Points on a circle

Q N05.2.4B 2D vectors, Equation of a line [8] Application to collision

Viewer

N05.2.4B 2D vectors, Equation of a line [8] Application to collision

Car 1 moves in a straight line, starting at point A (0, 12). Its position p seconds after it starts is given by $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 0 \\ 12 \end{pmatrix} + p \begin{pmatrix} 5 \\ -3 \end{pmatrix}$.

(a) Find the position vector of the car after 2 seconds. (2)

Car 2 moves in a straight line starting at point B (14, 0). Its position q seconds after it starts is given by $\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 14 \\ 0 \end{pmatrix} + q \begin{pmatrix} 1 \\ 3 \end{pmatrix}$.

Cars 1 and 2 collide at point P.

(b) (i) Find the value of p and the value of q when the collision occurs. (6)

(ii) Find the coordinates of P. (6)

(Total 8 marks)

Item 39 of 52 in Question Finder, total marks: 512, time allowed: 537 min

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Question Finder

Vectors Guidance Questions

Types Papers

N05.2.48 2D vectors, Equation of G8 [8]
 Application to collision
 M06.122.020 Solution of triangles, 2D G6 [6]
 Given 3 points
 M06.221.050 3D vectors, Scalar prod G19 [19]
 Given 2 position vectors
 M06.222.050 3D vectors, Scalar prod G19 [19]
 Problem solving based on cuboid
 N06.1.07 3D vectors, Equation of G6 [6]
 Given two points find equation of line
 N06.1.11 2D vectors, Scalar prod G6 [6]
 Given co-ords find vectors and use scalar product
 M07.122.060 3D vectors, Vector alge G6 [6]
 Given constraints find parameters
 M07.221.040 3D vectors, Equation of G22 [22]
 Given 2 points, find line, point of intersection and
 M07.222.030 3D vectors, Equation of G17 [17]
 Application to two aircraft

Untitled

Viewer

M07.222.030 3D vectors, Equation of a line, Angles, Inter: G17 [17]
 Application to two aircraft

In this question, distance is in metres, time is in minutes.

Two model airplanes are each flying in a straight line.

At 13:00 the first model airplane is at the point (3, 2, 7). Its position vector after t minutes is given by

$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 3 \\ 2 \\ 7 \end{pmatrix} + t \begin{pmatrix} 3 \\ 4 \\ 10 \end{pmatrix}.$$

(a) Find the speed of the model airplane. (2)

At 13:00 the second model airplane is at the point $(-5, 10, 23)$. After two minutes, it is at the point (3, 16, 39).

(b) Show that its position vector after t minutes is given by

$$\begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} -5 \\ 10 \\ 23 \end{pmatrix} + t \begin{pmatrix} 4 \\ 3 \\ 8 \end{pmatrix}.$$

(3)

(c) The airplanes meet at point Q.

(i) At what time do the airplanes meet? (6)

(ii) Find the position of Q. (6)

(d) Find the angle θ between the paths of the two airplanes. (6)

(Total 17 marks)

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Question Finder

Vectors Guidance Questions

Types Papers

N06.1.11 2D vectors, Scalar prod G6 [6]
 Given co-ords find vectors and use scalar product
 M07.122.060 3D vectors, Vector alge G6 [6]
 Given constraints find parameters
 M07.221.040 3D vectors, Equation of G22 [22]
 Given 2 points, find line, point of intersection and
 M07.222.030 3D vectors, Equation of G17 [17]
 Application to two aircraft
 N07.2.02 3D vectors, Equation of G16 [16]
 Based on cuboid
 M08.122.080 3D vectors, Scalar prod G13 [13]
 Given points use scalar product; find position vector
 M08.221.070 3D vectors, Scalar prod G7 [7]
 Use perpendicularity to find a parameter
 M08.221.090 3D vectors, Equation of G18 [18]
 Given 2 pts and 2 lines; find angle; equation and
 M08.222.070 3D vectors, Intersection: G6 [6]
 Given two lines find point of intersection

Untitled

Viewer

M08.222.070 3D vectors, Intersection of lines
 Given two lines find point of intersection

The line L_1 is represented by $r_1 = \begin{pmatrix} 2 \\ 5 \\ 3 \end{pmatrix} + s \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$ and the line L_2 by $r_2 = \begin{pmatrix} 3 \\ -3 \\ 8 \end{pmatrix} + t \begin{pmatrix} -1 \\ 3 \\ -4 \end{pmatrix}$.

The lines L_1 and L_2 intersect at point T. Find the coordinates of T.

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(Total 6 marks)

Item 52 of 52 in Question Finder, total marks: 512, time allowed: 537 min